Comments on v0 from Stan

General comments.

a) You might say a bit more about the new (7E20) analysis. You discuss x-talk in some detail but what about nuclear interactions modeling. Maybe try to give an impression that this is an evolving process with better and better simulation as we learn more from the data. I think it is important that you leave in reader's mind clearly that updated results are now available

I have added the following sentences:

The improved crosstalk modeling was used in the simulation. The modeling of hadron intranuclear rescattering was improved by tuning the hadron-nucleus scattering cross section against external data. The shower reconstruction algorithm was refined to only use hits above a threshold of 2 photoelectrons. The ANN was re-optimized over a sample of simulated events generated with improved simulation and event reconstruction [24].

b) This may well be a difference between Chinese and English language structure. You frequently make statements that leave the reader puzzled or questioning. Then few sentences later it all becomes clear. I would suggest giving explanation up in front. Some examples follow in subsequent discussion of specific items.

Thanks for pointing this out.

Specific comments. I use your line no's to identify the place.

33-indispensable. Not rigorously true. Cosmological observation could determine mass hierarchy without knowledge of theta13.

Changed to “important”.

54-I would say "secondary pion and kaon decays". Your version might imply that it is the decay products of pi's and K's that give these neutrinos.

Done.

57-peaked

Done.

77- or via numu-CC

Done.

78-irreducible nue background

Done.

79-you should mention here addition al contribution from K decays. The lateryou say that they are high energy.

Done.

81-mainly the decay product There are also K decays into mu's
Done.

103- RMS?
Yes, done.

104,105-Discuss here how it is optimized - MC. Near Detector,FOM
Add the following sentence:
This acceptance threshold is determined by maximizing the ratio of the accepted signal to the expected statistical and systematic uncertainty of the background.

112-Say here that it was done in individual energy bins
Done.

118,119 -I would elaborate here. Mu's decay further upstream so their solid angle difference is greater.
Changed to:
Also the muons tend to decay further downstream in the decay pipe and the resulting beam ν_e spectra are slightly different at the two detectors because of different detector solid angles.

130ff - some discussion of the fact that what is relevant here is the observed ie total hadronic energy. People might worry about extrapolating from high enrages to lower energies.
Changed to:
The total background in each reconstructed energy bin can be written as a sum of the individual components:

147- hits are expected to imitate
Done.

168- in the initial version of the MC used in this analysis
Done.

176-mention 7E20 so there is no confusion about which analysis
Done.

192-194 sentence appears somewhat garbled. Also, I suggest splitting it into two. One part with the method; the other one with the result.
Changed to:
196-explain why 1.5 and not 0.3.
Rewritten as following:
We compare the ν_e-CC selection efficiencies evaluated using the muon-removed events from data and MC. The selection efficiency obtained from the data agrees with that obtained from the MC to within 0.3%. The difference is applied as a

correction factor to correct the simulated ν_e-CC selection efficiency. We also evaluate the systematic uncertainties on the correction factor. We estimate our signal selection efficiency to be (41.4±1.5)% [22].

197-use past tense
Done.

214-beam configuration
Done.

217 - for the 7E20 data sample Otherwise the reader may be confused
Done.

218-0.7 sigma excess
Done.

Fig 2 - shown on the data and are invisible - ??????
Changed to:
The statistical uncertainties on the data are negligible and are invisible on this scale

Fig 3 - the data points are not identical in the two figures; need to explain
Add the following sentence:
The two data distributions are not identical because the two samples have different numbers of cosmic ray muon tracks and the new sample is reconstructed with improved reconstruction software and calibration constants.

Fig 5(?) - I suggest adding results of 7E20 analysis; maybe an extra figure
Done.